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ABSTRACT

An opinion survey method for identifying low aptitude job types was developed and used in a study of 11 Air Force career ladders. Lists of low aptitude tasks were defined by technical advisers. These tasks were then rated on nine factors by Air Force instructors who also described low aptitude job types and gave their opinion concerning the possibilities for advancement and training of low aptitude personnel. In an evaluation of the research methodology, strengths and weaknesses of the opinion survey method were delineated. The relative ease with which the task lists were constructed lent support to the utility of the method. A limitation in the method was recognized in the inability to control for systematic rater bias. (Author)

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A METHOD FOR DETERMINING JOB TYPES FOR LOW APTITUDE AIRMEN

By

Clyde C. Mayo

Lifson, Wilson, Ferguson, and Winick, Inc.

Personnel Research Division
Lackland Air Force Base, Texas

November 1969

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AIR FORCE HUMAN RESOURCES LABORATORY

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AIR FORCE HUMAN RESOURCES LABORATORY
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FOREWORD

This report, prepared by Lifson, Wilson, Ferguson, and Winick, Inc. under Contract F41609-68-C-0016, is one of three published as a product of this contract. The other reports in the series are AFHRL-TR-69-27, *Construction and Administration of Ten Air Force Job Inventories,* and AFHRL-TR-69-32, *Three Studies of Job Inventory Procedures: Selecting Duty Categories, Interviewing, and Sampling.*

Clyde C. Mayo was the Project Director Dr. Joseph E. Morsh monitored the contract for the Personnel Research Division. Printed materials used in the study were reproduced by the Personnel Research Division, Air Force Human Resources Laboratory.

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ABSTRACT

An opinion survey method for identifying low aptitude job types was developed and used in a study of 11 Air Force career ladders. Lists of low aptitude tasks were defined by technical advisers. These tasks were then rated on nine factors by Air Force instructors who also described low aptitude job types and gave their opinion concerning the possibilities for advancement and training of low aptitude personnel. In an evaluation of the research methodology, strengths and weaknesses of the opinion survey method were delineated. The relative ease with which the task lists were constructed lent support to the utility of the method. A limitation in the method was recognized in the inability to control for systematic rater bias.

SUMMARY

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Problem

The study was undertaken to develop a research methodology to identify tasks and job types for which the aptitude requirements are relatively low. Such information would have application in programs directed toward fuller utilization of the nation's manpower resources in the military services. The methodology proposed the use of an opinion survey to uncover utilization areas within existing career ladders to define jobs and job types appropriate for low aptitude personnel.

Approach

An opinion survey was used to obtain information about low aptitude jobs in 11 Air Force career ladders. From task lists developed for use in current job analysis studies, technical advisers in the field were asked to identify those tasks which could be performed by low aptitude personnel.

Tasks which 25 percent of the advisers agreed were low aptitude tasks were submitted to technical training instructors for rating on nine evaluative factors. The factors were stated so that the rating would indicate presence or absence of the factor for the tasks; a high degree of prominence of the factor would imply a higher level of functioning, or higher aptitude requirement for performance of the task. The evaluative factors were Supervision, Training, Thought Required, Non-Routineness, Changes, Danger, Knowledge, Expense, and Non-Repetitiveness.

In addition to rating the tasks on the evaluative factors, the instructors defined job types for the career ladders in which low aptitude tasks were recognized.

Results

Low aptitude tasks were identified for 10 of the 11 career ladders surveyed. These tasks were, in turn, rated on the nine evaluative factors to determine the level of aptitude required for performance. The combined ratings on the tasks for all the career ladders indicated that the low aptitude tasks were characterized much more by the possibility of danger, changes, and expensive errors than they were by the need for knowledge, training, or supervision. In explanation of this finding, it was suggested that tasks are generally so well defined in standing operating procedures that there is little opportunity for variation. Although a task may be relatively uncomplicated and easily performed, there may be elements of danger or possibilities of costly errors simply because of the nature of the equipment or materials involved.

Low aptitude job types for the ten career ladders were defined by the instructors. In each case, specific tasks were identified which could comprise either full-time or part-time jobs for low aptitude personnel in the career areas. As a further effort toward identification of low aptitude jobs, the instructors judged the possibilities of advancement for low aptitude personnel. Most of the advisers seemed to believe that career advancement would necessarily be limited to the apprentice and journeyman skill levels, that extra training and supervision would be required, and that special knowledge, abilities, and personal characteristics would be necessary for any degree of success.

Conclusions

In the career ladders studied, hypothetical low aptitude tasks were identified and evaluated by technical advisers. Further, job types were defined in which low aptitude personnel could be utilized. The primary objective of the study, however, was to demonstrate the utility of a research methodology which incorporated the use of an opinion survey. This methodology appears to be applicable to the study of occupational structures.

A positive aspect of the method was seen in the ease with which the task lists were constructed; there was little disagreement among judges about the referents of the task statements. Further, the method allowed for the discovery of contradictions among the types of judgments made; e.g., in one career ladder,

three kinds of data had indicated that work could be performed by low aptitude personnel, whereas it became apparent in another facet of the rating procedures that certain circumstances would require the use of higher level personnel. The method, then, was sensitive to rating contradictions and in that sense provided a kind of cross-check within the system.

A weakness of the method was seen in its lack of control for systematic rater bias. The obtained ratings apparently reflected two trends in the opinions of the raters. One group tended to believe that low aptitude personnel have compensating abilities which can be maximized in appropriate job assignments. The other group apparently believed that capabilities of low aptitude personnel will always be limited and that the Air Force can derive no benefit from their employment.

This summary was prepared by J.E. Morsh, Occupational Research Branch, Personnel Research Division, Air Force Human Resources Laboratory.

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A METHOD FOR DETERMINING JOB TYPES FOR LOW APTITUDE AIRMEN

I. INTRODUCTION

Toward fuller utilization of the nation's manpower resources, the military services are placing considerable emphasis on the employment of personnel with low mental abilities. One example of the programs directed toward accomplishment of this goal is Project 100,000. This program calls for the utilization of Category IV personnel, a group defined as those applicants scoring between the 10th and 30th percentile on the Armed Forces Qualifying Test. An important factor in the success of such programs, of course, is the identification of the kinds of jobs available for personnel with different levels of aptitudes and abilities. The present study was undertaken to develop a research methodology for investigation of the mental ability requirements for various Air Force jobs.

An opinion survey method was used in the study to identify those tasks and job types within 11 Air Force career ladders for which the aptitude requirements would be relatively low. The technique is limited in that it was designed only to uncover narrow utilization areas within existing career ladders, rather than to reconstruct or discover entire career ladders in which low aptitude airmen may become full-fledged members. The occupational information derived from the study is not presented as a definitive analysis since the research methodology is itself experimental. Rather, the study is described primarily to demonstrate the feasibility of an opinion survey approach to the problem of identifying tasks and job types with low aptitude requirements.

II. METHOD

A multi-faceted opinion survey method was used to obtain information about low aptitude jobs. In the first phase, judgments were obtained by mail from technical advisers in the field; in the second, opinions were solicited during interview sessions with instructors at Air Force technical training centers. Lists of tasks performed in 11 career ladders were mailed to technical advisers in the specialties. The advisers were asked to indicate which tasks could be performed by personnel with low mental abilities. Those tasks which at least 25 percent of the technical advisers agreed were low level tasks were tabulated and presented to the technical training instructors for rating on a series of evaluative factors. The instructors also described job types for low aptitude personnel and indicated their prospects for advancement and training.

Table 1 presents the career ladders included in the study. Qualification for entry into these Air Force specialties is based on aptitude as demonstrated on the Airman Qualifying Examination (AQE). As is apparent from the aptitude indexes shown, most of the career ladders surveyed have high aptitude admission requirements.

III. PRELIMINARY IDENTIFICATION OF LOW APTITUDE TASKS BY TECHNICAL ADVISERS

Task lists which were relatively complete descriptions of the work performed in each of the career ladders were obtained from job inventories currently being used for job analysis. For a preliminary identification of low aptitude tasks, the lists were mailed to technical advisers in the field. Each adviser was asked to indicate on the task list appropriate to his career ladder those tasks which could be performed by low aptitude personnel. Tasks thus identified by at least 25 percent of the advisers were classified as hypothetical low aptitude tasks. For five of the career ladders surveyed, only technician level advisers were consulted. For the other six, advisers were from apprentice, journeyman, technician, and superintendent levels. Table 2 presents for each career ladder the number of advisers consulted, the number of tasks in the original task list, the number of hypothetical low aptitude tasks, and the percentage of hypothetical low aptitude tasks in the original task list.

It is apparent from Table 2 that opinions of the technical advisers ranged widely among career ladders. The number of tasks agreed upon by at least 25 percent ranged from zero in the Weather Career Ladder (253X0/A) to 68 in the Automatic Flight Control Systems Career Ladder (325X0/A).

Lists of the hypothetical low aptitude tasks for ten of the career ladders were compiled for presentation to technical training instructors. The Weather Career Ladder offered no promise for further study since no tasks were identified as low aptitude tasks.

Table 1. **AQE Aptitude Index Requirements for Qualification in 11 Career Ladders**

AFSC	Air Force Specialty	AQE Aptitude Composite	Aptitude Index Requirement
234X0	Precision Photoprocessing	General	60
253X0/A	Weather	Electronics	80
301X0	Aircraft Radio Repair	Electronics	80
301X1	Aircraft Electronic Navigation Equipment Repair	Electronics	80
325X0/A	Automatic Flight Control Systems	Electronics	80
342X0/A	Flight Simulator	Electronics	80
363X0	Communications and Relay Center Equipment Repair, Electro/Mechanical	Electronics	60
423X0	Aircraft Electrical Repair	Electronics	40
424X0	Aircraft Fuel Systems	Mechanical	40
563X0	Water and Waste Processing	Mechanical	40
566X0	Engineering Entomology	General	60

Table 2. **Proportion of Tasks Identified by Technical Advisers as Low Aptitude Tasks**

AFSC	No. of Advisers	No. of Tasks in Task List	No. of Hypothetical Low Aptitude Tasks	Percentage of Low Aptitude Tasks in Task List
243X0*	82	215	34	15.8
253X0/A	38	124	0	0.0
301X0	49	265	21	7.9
301X1	46	249	22	8.8
325X0/A*	136	268	68	25.4
342X0/A*	149	218	18	8.3
363X0*	123	209	18	8.6
423X0	38	223	2	0.9
424X0	52	214	38	17.7
563X0*	74	156	58	37.2
566X0*	59	126	15	11.9

Note. - Asterisks indicate career ladders for which technical advisers included apprentice, journeyman, technician, and superintendent skill levels; advisers for the other career ladders were at the technician skill level.

IV. EVALUATION OF HYPOTHETICAL LOW APTITUDE TASKS BY INSTRUCTORS

Further information on the hypothetical low aptitude tasks was obtained during group sessions with instructors at various Air Force technical training centers. The information was evaluative in nature, consisting of forced-choice ratings of the hypothetical low aptitude tasks on nine factors: Supervision, Training, Thought Required, Non-Routineness, Changes, Danger, Knowledge, Expense, and Non-Repetitiveness. Factor titles and the rating levels are presented in the appendix. The levels for seven of the factors were structured to offer a dichotomous choice, the first level indicating that the factor was present and the second that the factor was absent. For example, on the factor Changes, the rating would indicate that the task was subject to changes in equipment or procedures, or that it was not. In the first instance, the implication would be that a higher level of aptitude is required to perform the task; the second level rating would imply a lower aptitude requirement. On the factors Supervision and Training, there were three levels. A rating of the first level would indicate a great requirement for supervision or training, the second, a limited requirement, and the third, no requirement at all.

Ratings were analyzed separately for each career ladder so that statements could be made about the prominence or lack of prominence of the factors for a given career ladder. Ratings on each factor were tallied for all hypothetical low aptitude tasks in the career ladder, and a percentage of prominence of the factor for that ladder was computed. In the Engineering Entomology Career Ladder (566X0), for example, the technical advisers had identified 15 tasks as hypothetical low aptitude tasks. Forty-two percent of the instructors' ratings of these tasks on the factor Non-Routineness indicated that the tasks were not routine; 58 percent of the ratings indicated that the tasks were routine.

Data were not obtained for the Aircraft Electrical Repair, Aircraft Radio Repair, and Aircraft Electronic Navigation Equipment Career Ladders since interviews with the instructors in these career ladders were used to establish the factor structure for the rating system. Nine instructors were interviewed for each of four remaining career ladders, with ten, seven, and four instructors, respectively, for the other three ladders. Evaluative ratings of instructors discussed in the present section do not apply to all the tasks in the career ladder but, rather, only to those tasks that had been identified by the technical advisers as hypothetical low aptitude tasks.

Results Averaged Across Seven Career Ladders

The degree of prominence of the factors averaged across the career ladders (i.e., the percentage of all the ratings on each factor at the first level) are rank-ordered as follows:

Factor	Interpretation of Rating	Percentage of First Level Ratings
Training	Task performance requires basic course	23
Knowledge	Task performance requires broad knowledge of career ladder	32
Non-Routineness	Tasks are not routine	34
Supervision	Task performance requires great deal of supervision	36
Thought Required	Task performance requires analytical, conceptual, or creative thought	50
Non-Repetitiveness	Tasks are not repetitive enough to keep worker busy full time	65
Danger	Poor performance of tasks is potentially dangerous to worker or others	68
Changes	Tasks are subject to changes in equipment and procedures	71
Expense	Poor performance of tasks is likely to cause expensive errors	80

According to the instructors' ratings, the hypothetical low aptitude tasks are characterized much more by the possibilities of danger, changes, and expensive errors than they are by the need for extensive knowledge, training, or supervision. One possible explanation for this finding is that standing operating procedures (SOPs) define tasks so well that there is little opportunity for variation and, consequently, little requirement for extensive knowledge, training, or supervision. Even with definitive SOPs, however, the fact that an airman may be working near fuel tanks, high voltage lines, or expensive equipment is itself enough to increase the possibility of danger or expensive errors. It is important to remember, however, that advisers in the field agreed that many tasks characterized by the possibility of danger, expensive errors, or changes could be performed by low aptitude personnel.

Table 3. **Percentage of Prominence of Evaluative Factors for Each Career Ladder**
(Average Percentage of Ratings at Each Rating Level)

AFSC	No. of Raters	Percentage of Factor Ratings at Each Rating Level																			
		Supervision			Training			Thought Required		Non-Routineness		Changes		Danger		Knowledge		Expense		Non-Repetitiveness	
		a	b	c	a	b	c	a	b	a	b	a	b	a	b	a	b	a	b	a	b
234X0	7	54	44	2	26	70	4	48	52	56	44	78	22	62	38	34	66	90	10	38	62
325X0	9	36	54	10	11	77	12	41	59	38	62	63	37	62	38	20	80	69	31	75	25
363X0	9	44	52	4	29	69	2	82	18	29	71	90	10	53	47	70	30	82	18	40	60
342X0	10	20	66	14	8	72	20	50	50	24	76	72	28	71	29	20	80	81	19	73	27
424X0	9	18	66	16	24	65	11	43	57	30	70	56	44	71	29	20	80	84	16	93	7
563X0	9	18	74	8	14	81	5	21	79	20	80	49	51	58	42	16	84	57	43	69	31
566X0	4	60	34	6	48	48	4	67	33	42	58	90	10	100	0	48	52	100	0	69	31

Table 3 presents the percentage of ratings at each rating level for all hypothetical low aptitude tasks. These percentages reflect the combined rater judgments of the relative prominence of the factors for the low aptitude tasks in each of the career ladders.

V. LOW APTITUDE JOB TYPES

Instructors were asked in a direct, open-ended question to describe job types which could be filled by low aptitude personnel. Instructors were free to use information from any source, including the lists of hypothetical low aptitude tasks. The results are summarized for each of the career ladders.

1. *Precision Photoprocessing (234X0).* Instructors agreed that one job exists with the tasks of assembling processed films and prints, packaging and shipping films or prints, and performing courier duties.

2. *Aircraft Radio Repair (301X0).* Several instructors suggested that depot level tasks such as fungus-proofing equipment or weather-proofing printed circuit boards could constitute a full-time job type for low aptitude personnel. It is rare, however, for radio repairmen to be assigned to a depot position. There was some evidence that low aptitude personnel could work as assistant supplymen in large organizations.

3. *Aircraft Electronic Navigation Equipment Repair (301X1).* Instructors were reluctant to state that any full-time low aptitude job types exist. Several isolated low level tasks were mentioned, however. These were in the areas of supply, inspection, applying safety wiring, preparing black boxes for shipment, servicing hand tools, and cleanup.

4. *Automatic Flight Control Systems (325X0).* Four job types were mentioned by instructors. The first would involve clerical work in which the incumbent would inventory and requisition supplies and equipment, initiate paperwork for bench-check items, monitor test equipment calibration schedules, and supervise shop housekeeping.

The second would be an inspector's job which would include the inspection of aircraft wiring; automatic flight control systems for corrosion; cables, resistors, or capacitors for cracked enamel or overheating; tubing, bolts, nuts, or cotter pins; component covers for dents, cracks, or other deformities; connectors for bent pins or stripped threads; and mechanical linkages and mountings for wear or misalignment. The preparation and attachment of identification tags for components would also be included in the inspector's job.

The third would be a maintenance support job in which the incumbent would remove or replace fuselage or wing panels; attach components to mounting points in shipping containers; dye-mark mating sections of components; perform safety wiring and cotter keying; prepare components for shipment to depot; repair component covers or mountings; seal and label shipping containers; lubricate mechanical assemblies, pack components for storage or shipment; and perform shop cleanup.

The fourth job type would be clerical, consisting of preparing supply forms, master rosters, danger tags, parts requests, rejected tags or condemned tags, special work orders, and TCTO records. This job type would also include numbering work orders and preparing followup letters on supply items.

5. *Flight Simulator (342X0).* Instructors were willing to accept only two rather limited jobs for low aptitude personnel. The first would consist of inventorying supplies or equipment, initiating paperwork for bench-check items, and monitoring test equipment schedules. The second would be a preventive maintenance job in which the incumbent would vacuum equipment, clean hand tools, lubricate mechanical assemblies, monitor room air conditioning, perform general cleanup, and replace air filters.

6. *Communications and Relay Center Equipment Repair (363X0).* There was some agreement among instructors that cleaning and lubricating teletype equipment is a low aptitude task and that it could become a full-time job at installations with a large inventory of equipment. However, nearly half of the instructors felt that preventive maintenance routines which include cleaning and lubricating require experienced journeymen.

7. *Aircraft Electrical Repair (423X0).* Instructors disagreed somewhat; however, half of them felt that a low aptitude job would be available in battery shops. It would consist of such tasks as inspecting battery vent systems, servicing batteries, and soldering.

8. *Aircraft Fuel Systems (424X0).* Instructors described a depot level job which would consist of such tasks as storing fuel tanks; inspecting and cleaning cavities, drop tanks, and tools; installing core date parts; placing identification tags on components; coating bladder type cells with lacquer; picking up and delivering parts; and preparing drop tanks for installation or storage. It would be less

likely that low aptitude personnel could be utilized in field or organizational maintenance; however, possible tasks would be in the areas of supply, housekeeping, and lubrication.

9. *Water and Waste Processing (563X0).* Several low aptitude job types were identified in the Water and Waste Processing Career Ladder. The first, Assistant Water Plant Operator and Laboratory Tester, would require the incumbent to operate such equipment as chemical feeders, chlorinators, hypochlorinators, and water pumps. He would also collect raw water samples and test the water for temperature, alkalinity, color, hardness, turbidity, and other characteristics.

The second job type would occur in the water plant maintenance area. The tasks would include cleaning wire strainers on water lines; cleaning cooling towers; inspecting cooling towers; maintaining slurry feeders; performing operator maintenance on pumps; scraping and painting water plant equipment; inspecting walls for water levels; localizing leaks; maintaining logs of water plant equipment operation and water usage; performing temporary pipeline repair; preventing freeze-up of pipelines; and reading gauges and meters.

A third job type, Sewer Plant Operator Helper, would include the operation of ejector stations, grease removal equipment, pump stations, raw sewage lagoons, sewage oxidation ponds, rotary sludge collectors and sludge pumps, shredders, and sludge drying beds; and the treatment and disposal of sludge.

A fourth job type would consist of heavy work such as grounds upkeep, vehicle operation, cleaning pumps, painting equipment, and shoveling drying beds.

10. *Engineering Entomology (566X0).* The concensus of instructors was that no full-time job types exist for low aptitude personnel. However, large workloads occur in the summer months, and low aptitude personnel could be utilized on a part-time basis in the activities of trenching and filling for termite treatment and mosquito control. Supplementary tasks during peak workloads would be the operation of tractors or trucks and the handling of limited types of paperwork.

VI. ADVANCEMENT AND TRAINING OF LOW APTITUDE PERSONNEL

In another open-ended question, instructors were asked to indicate whether low aptitude personnel could achieve advancement in their respective career ladders. Table 4 presents a summary of the answers to this question arranged by career ladder. None of the instructors answered the question with an unqualified yes, but several types of "Qualified Yes" responses were given.

The most frequently mentioned qualification was that advancement probably could not be achieved beyond the apprentice and journeyman skill levels. The next most frequently mentioned qualifications were that advancement could occur only with much extra training or supervision; only if the basic course or the Specialty Knowledge Test could be passed successfully; only if eagerness or an extremely positive attitude were displayed by the incumbent; and only if the incumbent had acceptable amounts of background knowledge or special abilities.

Other qualifications were mentioned less frequently. Some instructors believed that advancement could be achieved only if certain conditions prevailed. The advancement rate would be slower; the incumbent would be competing with personnel of similar mental ability; he would be able to overcome the morale problem of being overshadowed in ability by other airmen; he would be assigned to work in specific units; he had adequate reading ability; he had the ability to learn from experience; and he had a large capacity for self-help.

In a third open-ended question, instructors were asked about the value of the basic course in training low aptitude airmen. A large majority in all career ladders indicated that the basic course would be beneficial. An occasional instructor felt that a course might do more harm than good; i.e., if the incumbent successfully completed the course, he might become overconfident and thus be doubly dangerous on the job.

Table 4. **Advancement Potential of Low Aptitude Personnel as Judged by Training Instructors**

AFSC	No. of Instructors Interviewed	Response	
		No	Qualified Yes
234X0	7	1	6
301X0	9	5	4
301X1	3	2	1
325X0	7	1	6
342X0	10	3	7
363X0	9	2	7
423X0	9	2	7
424X0	9	0	9
563X0	9	0	9
566X0	3	2	1

VII. EVALUATION OF THE METHODOLOGY

A method for discovery of low aptitude job types was proposed and utilized in a survey of 11 Air Force career ladders. Four kinds of data were gathered:

1. Lists of hypothetical low aptitude tasks defined by technical advisers working in the field
2. Ratings of the hypothetical low aptitude tasks on evaluative factors obtained from instructors at Air Force technical training centers
3. Descriptions of low aptitude job types obtained from instructors
4. Opinions of instructors concerning the potential advancement and training of low aptitude personnel

An opinion survey method was developed and applied to identify tasks in the career ladders which could be performed by low aptitude personnel. The results are not intended for interpretation as being definitive of actual low aptitude job types; rather, they are intended to demonstrate the utility of the method for possible future applications.

Strengths of the Method

Stimulus materials (i.e., task lists) were easily constructed; there was little disagreement among judges about the referents of the task statements. Information was obtained from judges who were experienced with work and supervision in the various career ladders. Since it was multi-faceted, the method uncovered apparent contradictions among types of judgments made. For example, three kinds of data seemed to indicate that the Automatic Flight Control Systems Career Ladder would have work which could be performed by low aptitude personnel. However, the fourth kind of data, evaluative job factor ratings, indicated that such factors as danger, responsibility, training, and supervision would be heavily weighted even in the successful performance of an apprentice airman with normal mental abilities.

Weaknesses of the Method

The method does not control for systematic bias. In nearly every group of instructors interviewed, two opposite trends appeared to be affecting the opinions of instructors. The first, more favorable to the use of low aptitude personnel, was the belief that low test scorers frequently display "common sense" and reasonable mechanical or shop knowledge. Instructors with this belief seemed to be willing to spend extra time training low aptitude personnel. The second was an attitude that low aptitude personnel should not become members of Air Force career ladders under any circumstances. Instructors with this attitude held that the capabilities of low aptitude personnel would always be limited and the Air Force would receive more harm than benefit from their employment. If given journeyman status in a career ladder, the low aptitude airman (like any other journeyman) might be called upon to perform work which requires a maximum of skill, effort, and responsibility.

APPENDIX. RATING FACTORS FOR HYPOTHETICAL LOW APTITUDE TASKS

Factor	Level
1. SUPERVISION	a. The task can be performed only with a great deal of supervision. b. The task can be performed with limited supervision. c. The task can be performed with no supervision.
2. TRAINING	a Basic course is necessary for task performance. b. On-the-job training is necessary for task performance. c. No training is necessary for task performance.
3. THOUGHT REQUIRED	a. Analytical, conceptual, or creative thought is necessary for task performance. b. Analytical, conceptual, or creative thought is not necessary for task performance.
4. NON-ROUTINENESS	a. The task is not routine. b. The task is routine.
5. CHANGES	a. The task is subject to changes in equipment or procedures. b. The task is not subject to changes in equipment or procedures.
6. DANGER	a. Poor performance on this task could result in danger to self or others. b. Poor performance on this task could not result in danger to self or others.
7. KNOWLEDGE	a. Performance of this task requires a broad knowledge of the career ladder. b. Performance of this task does not require a broad knowledge of the career ladder.
8. EXPENSE	a. Poor performance of this task could cause excessive expense. b. Poor performance of this task could not cause excessive expense.
9. NON-REPETITIVENESS	a. This task is not repetitive enough to keep a worker busy on it full-time. b. This task is repetitive enough to keep a worker busy on it full-time.